COMMUNITY HEALTH SURVEYS
A Practical Guide for Health Workers

3. Using Available Information

SECOND EDITION

Previous Title :

FINDING AND USING INFORMATION

A Guide for Health Workers

Prepared for the International Epidemiological Association

by

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Published by

INTERNATIONAL EPIDEMIOLOGICAL ASSOCIATION

IEA

1983

Request for copies of this publication can be made to one of the Regional Offices of the World Health Organization listed below.

Regional Office for Africa, P.O. Box No. 6, **Brazzaville,** Congo.

Regional Office for the Americas/Pan American Sanitary Bureau, 525, 23rd Street, N.W. **Washington,** D.C. 20037, USA.

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Regional Office for South-East Asia, World Health House
Indraprastha Estate, Mahatma Gandhi Road, **New Dehli**-110002, India.

Regional Office for the Western Pacific, P.O. Box 2932, **Manila** - 2801, Phillippines.

Printed in Switzerland

COMMUNITY HEALTH SURVEYS
A Practical Guide for Health Workers

Other numbers in this series :

Number 1. Planning and Organizing

Number 2. Survey Sampling

Number 4. Questionnaire Design

Number 5. Interviewing and Recording

Number 6. Presenting Survey Information

USING AVAILABLE INFORMATION

FINDING AND USING INFORMATION

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INTRODUCTION

Administrators, clinicians and others working in the health services all encounter difficulty in finding and using information relevant to the health and community problems confronting them. Such information as they can find, or can extract from publications and routinely collected statistics, has still to be assessed as to its suitability and reliability. Sometimes there are long delays before existing data are processed and printed so that meanwhile valuable information is not available for use.

Despite these difficulties, information can be found and used. Information can be compared to a bad road full of holes and bumps so that it is impossible to drive on it. The holes and bumps represent the missing and the incorrect or misleading information that prevents administrators, clinicians and other health workers from recognising and acting confidently upon community problems. However, even a very bad road is passable (usable) to the careful drivers. Often administrators and other health service workers already have valuable information which they fail to apply (use) or apply ineptly (wrongly).

Primary Health Care teams, clinicians and health administrators all need to make greater use at the first referral level of the information they already have; they also need more and better information and they must be able to find it quickly when it is needed. **More training in 'how to use' and 'how to find' is urgent at all health service levels.**

This booklet, the third in the series 'How to Know my Community Better' suggests a few ways of finding, assessing and using already available information. The application of these methods is illustrated by the discussions at a Survey Workshop where several doctors and health workers explain the difficulties they encountered in finding and using available information which must often be augmented (added to) by survey information. Routinely collected information, research results and survey findings must all be taken into account and used to promote the health and well-being of the community.

In keeping with the previous booklets in this series, the text has been divided into two sections. General principles and guidelines on how to find, assess and use information are given on the left hand pages. The right hand pages illustrate, by example and discussion at a Workshop, the application of these principles and guidelines. Attention is also drawn to typical information problems and questions; these are enclosed in boxes on the left hand page with arrows pointing to the relevant section on the right hand page where these questions and problems arise.

FINDING AND ASSESSING AVAILABLE INFORMATION

General Principles

Everyone interested in community welfare and health problems requires information. *Not everyone needs the same information. Planners and administrators generally have information needs different from those of clinicians, nurses and community workers.*

Much of the information required is often not available. *This may be because it has not been collected or has not been published, or is out of date. At other times information is recorded and presented in a form that is not relevant to the problems under consideration. Even when much needed information is available, it may be scattered in journals and reports that are not known, or not available, to those seeking this information.*

Source of information :

(i) Census

(ii) Civil Registration Office

One of the most difficult tasks is to find out what is already known about a problem and where this information can be found.

Limitations :

summary table only : lack of small area data

Even when all the required information is not available, it is usually possible to find at least some useful information on most health and social problems. **To find this information requires active and determined searching.** *Useful ways of obtaining information include discussions with colleagues and friends, talking to patients, and corresponding with govern ent and city departments.*

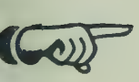
EXAMPLES AND APPLICATIONS

WORKSHOP ON HEALTH SURVEYS

First Speaker : Dr. J. Ashma

Subject : The Need for Background Information

Dr. Ashma's Community Health Centre served the district of Parjub in which the town of Hosta with 1,500 persons was the largest. Kinja was the second town, a large village really, with a population of about 1,000. In addition there were 36 small villages, whose sizes were unknown although none was thought to have a population greater than 400.



The Civil Registration Office, at which all marriages, births and deaths had to be reported, was situated in Hosta and it was from there that Dr. Ashma obtained the seven year old census data relating to his district. The information was given in the form of two tables, one for the two towns of Hosta and Kinja and one summary table for all the other villages combined. The smaller villages were combined into a single table because census data (figures) are not published for individual villages with population less than 1,000.

Often, after collecting information from these and other sources, it is found that the information as recorded and reported does not meet one's needs. The information may be incomplete, insufficiently comprehensive, out of date, not in a form in which it can be used or unsuitable for other reasons.

Even when the available information does not completely meet all one's needs, it is still very valuable and should be used as a starting point for collecting further information. Most studies and surveys can be shortened and simplified just because information already available makes it unnecessary to cover the whole field.

Complete information on any problem is an unattainable ideal. *The real skill of health administrators and clinicians lies in finding and using available information to the greatest possible extent and only undertaking surveys and other studies to collect essential additional information.*

Using information wisely is just as important as finding it. *Health information usually comes in the form of articles, reports and statistical tables which the investigator must read and understand.*

In seeking to solve health and community problems the available information should be tested against four simple criteria (conditions) :

(i) **Relevance** : *How relevant is the available information and what bearing does it have on our current (or local) problems ?*

(ii) **Time Factor** : *Is the available information sufficiently up to date (recent) to be relevant ?*

(iii) **Comparability** : *Does the available information relate to communities, age groups, conditions and environment comparable and sufficiently similar to those of the current problems ?*

Census 1974

Age in years	Hosta		Kinja		TOTAL
	Males	Females	Males	Females	
under 5	106	103	79	64	352
5 - 14	159	150	106	111	526
15 - 24	153	141	107	91	492
25 - 49	244	218	158	138	758
50 +	78	139	59	97	373
TOTAL	740	751	509	501	2,501

Census 1974

Combined Population Of All Villages Of Less Than 1,000 Inhabitants

Age in years	Males	Females	TOTAL
under 5	948	836	1,811
5 - 14	865	872	1,737
15 - 24	791	626	1,417
25 - 49	1,052	807	1,859
50 +	201	426	627
TOTAL	3,857	3,594	7,451

These two tables were important to Dr. Ashma because they showed :

(iv) **Reliability** : *Has the available information been collected in a proper and reliable manner so that it can be trusted ?*

These criteria help administrators, clinicians and others to sift (sort) the available information into useful information that should be retained and applied to their own problems and information that is to be discarded (not used). Only after this sifting of information can a decision be made as to what additional information is essential for solving current problems and whether a survey can provide this information.

Most community health information is used in one of two ways :

(i) to **describe** *the characteristics, and to give the basic facts about a community and its health.*

Important background information :

(i) total population size given

(ii) broad age group distribution given

Indication of Problems :

Differences between towns and villages.

(i) birth rate ?

(ii) family planning ?

Indication of Problems :

Fall in the female/male ratio within the childbearing age groups. This suggests health dangers associated with pregnancy, delivery, and post-natal care.

Information not available

Limitations :

Unknown migration effect: are the old census figures therefore misleading ?

(1) that the total population for his health district in 1974 was just short of 10,000 (7,451 + 2,501);

(2) the age and sex distribution of his population. Unfortunately the age groups were not suited to public health measures. The group 'under 5' is too wide for planning infant health policies;

(3) the tables showed considerable differences in the percentage of very young children between the town and the village populations. For the towns, about 14% (352/2,501) of children were under the age of 5 years, whereas for the villages it was considerably higher at 24% (1,811/7,451). This can only be due to differences in family planning practice;

(4) in both the town and village tables there are about the same number of males and females in the age group (5-14), yet within the childbearing age groups (15-49) there are fewer females than males. This difference is even more marked (pronounced) in the village population. This may suggest serious pregnancy and postnatal hazards which need to be followed up and studied.

Unfortunately the census returns (data) for 1974 gave no information on family size and/or its composition. This information would have to be collected by a survey.

Dr. Ashma went on to comment on the seven-year-old census data. It was known, or at least widely believed, that the villages were losing families in the active working groups aged 20 to 44 years, who were moving to the towns and looking for work there. It was not known how substantial this effect was for his district which was some 120 miles from the nearest industrial town. Nevertheless a slight drop in the total population since 1974 was suspected.

(ii) to **indicate** *that social and health changes have occurred.*

Important information can usually be used both to describe the facts and to indicate problems and changes. The skillful user of information will exploit both aspects of his data (information).

This can be illustrated using typical information obtainable from the records of a well run infant care and family planning centre. In this example information from two years is compared.

Source of Information

Civil Registration Office : Birth and Death notification

Reliability and Completeness of Information :

(i) incomplete reporting of births and deaths

(ii) inaccurate reporting of 'cause of death'

Year	No. of married females aged 15 - 44	No. of live births	No. of infant deaths during the year
1970	980	203	54
1980	1,032	191	23

The above data **describes** *the actual situation in the years 1970 and 1980, and gives the number of women registered with the centre, the number of live children born to these married women in these years and the number of infants' deaths during the year.*

Dr. Ashma's immediate concern was diarrhoea and gastric disorders, possibly due to polluted water and poor food preparation. If gastric disorders were as serious as he thought, then this should be reflected in the number of infant deaths reported to the Civil Registration Office. He therefore examined death notifications at the Registration Office over the previous two years. He was disappointed; there had not been a resident doctor in the district until the opening of the Community Health Centre, so that most notifications recorded vague and very general diagnoses. The cause of death in infants was often recorded as 'fever' with no indication as to whether or not these were of gastric origin. Dr. Ashma also noticed that more remote villages reported fewer births and fewer infant deaths although the villages were of similar size to those nearer the Health Centre. The Civil Registration clerk confirmed his suspicion that notifications of births and deaths were not complete and an unknown number were not reported, especially those infants who died within the first three months, or whose parents lived further away.

Despite these defects in the information, Dr. Ashma studied the monthly number of infants deaths recorded as due to gastric problems for the years 1979 and 1980. This gave him the following table :

The information, however, also **indicates** *that the child care offered at the centre has reduced the ratio of infant deaths to live births from 27% (54/203) to 12% (23/191). On the other hand, it also* **indicates** *that the family planning campaign has only had a slight effect. In 1970 the ratio of live births to married mothers was 0.21 (203/980) and in 1980 only slightly less, 0.19 (191/1,032).*

Information consistent with suspected food and water contamination

Lack of important information

Only a survey could obtain information on :

(i) family size

(ii) water supply, in sufficient detail to determine health policy

(iii) food storage and food hygiene

Infant Deaths from 'Gastric' Causes Reported to Civil Registration Office for Parjub District. 1979 and 1980

Month of Death	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
No. of deaths from gastric problems	4	7	6	9	6	22	25	34	17	12	8	5

These infant deaths due to 'gastric causes' undoubtedly follow a pattern co-inciding with the hot and wet periods of the year in his country. Food and water contamination is therefore a plausible explanation, although to confirm this more reliable information is needed.

Dr. Ashma went on to say he had not managed to get all the important information he needed from 'official' sources. For instance he could find no information on :

(i) **the family size and its composition for his district.** Some 'average' figures were available for rural areas in the country as a whole. He did not know how well this information applied to Parjub district;

(ii) **sources and type of water supply in his district.** There was, in particular, no information available on how the water supply from wells, springs or rivers varied (changed) between the dry and rainy seasons;

(iii) **food preparation and food storage.** He had looked at some sociological and anthropological theses at the University library, but these had not discussed food hygiene or food storage.

Importance of information on attitudes and people's views of their own needs

The importance of talking to people

In discussion find out :

(i) what people think they need

(ii) what people complain about

(iii) what people ask for

(iv) what people expect to get from the health services

(v) what people think can be done to improve services

Dr. Ashma was, however, able to obtain some information on peoples' attitude towards the Health Centre and how they saw their own health and community needs.

At the University library he had not found any information on food preparation and storage as he had hoped. However, several of the research theses kept in the library discussed at length the importance of obtaining the consent and understanding of the community if new policies and changes affecting the community were to be successfully introduced. In particular, the need to work with the local community leaders and to have meetings and discussions with the community was stressed. Dr. Ashma was convinced that a survey could only be done properly if he gained the support of the village elders.

For some months before starting on the survey plans, Dr. Ashma had arranged to come into the patient waiting room for short periods, several times a day, and talk to the patients about general problems not specifically connected with their own health. He soon learned that lack of transport and the distance from the Health Centre were serious problems; distant patients were reluctant to come to the Health Centre except for the most serious conditions. The Health Centre was seen as a place for treating accident cases, fractures and open infections, but less easily understood conditions, e.g. fever and internal complaints, were often treated by traditional healing methods. The attitude of many patients to the Health Centre was one of caution and suspicion mingled with an appreciation that it could often help and cure where traditional methods failed. Dr. Ashma also learned much about the poverty and living standards of his patients.

All this background information was very useful to Dr. Ashma when he came later to plan the survey and design his questionnaires.

ASSESSING AVAILABLE INFORMATION :

The general principles for assessing (testing) the usefulness of available data have been stated in the form of four criteria :

(i) Relevance

(ii) Time Factor (timeliness)

(iii) Comparability

(iv) Reliability

Difficulty finding relevant information. Active searching required.

It requires skill and thought to apply these criteria to practical problems. The user of information must ask himself a number of searching questions about the available information. These questions are quite specific and change with the type of problem, the type of information available and the use that is to be made of the information.

These general and practical principles will now be illustrated by application to the information available to the survey workshop speakers at the time they were planning their surveys.

A. Is it relevant ? Yes certainly :

(i) it provides a 'yard stick' against which to measure the school performance of other children.

(ii) it provides tests that Dr. Singh might use or modify for his own survey.

Second Speaker : Dr. K. Singh

Subject : A Survey of School Performance

Dr. Singh's difficulty was in finding relevant information about the parents' influence on their children's progress at school. He first wrote to the State Department of Education and requested information on the tests used to assess the standard of reading, writing and arithmetic of school children. The Department was most helpful and provided him with copies of their test material and full descriptions on their use to assess performance at school.

For each age an adjusted test was prescribed for each subject and separate tables showed the percentage of pupils expected to attain different score totals on each of these tests at different ages.

Dr. Singh displayed one of these tables :

Reading Assessment at Age 8
Score Totals : Expected Percentage of Pupils

Reading Score Total	49 or less	50-69	70-89	90-109	110-129	130-149	150 +
Pupils%	3%	8%	17%	32%	21%	13%	6%

Average Score = 105

B. Is it comparable ? *This is questionable.*

(i) The tests were developed and tried (used) in a typical urban school, not a small town, semi-rural community such as Dr. Singh's.

(ii) The tests are very specific as to age and length of stay at school. Conditions are likely to be more varied at a village or small town school where children of different ages and different school experience are together in the same class-room. It is therefore uncertain whether these tests are entirely applicable to Dr. Singh's situation.

C. The Time Factor ? *This is unknown.*

However, if the same or very similar school performance tests are used by Dr. Singh, then the number of years since the Department of Education established these tests is not very important.

D. Is the Information Reliable ? *Probably yes.*

The information available gives no details of how the school performance tests were constructed. The Department of Education is aware of test construction problems and is likely to have used skilled professional staff in developing and evaluating these tests. This might be worth further enquiry.

The Department of Education stressed the importance of setting the appropriate (correct) test for each age, that the years of educational exposure (years at school) should be the same for all children in a particular age group and that the tests were designed for a 'typical urban school population'. Only later did he appreciate that the strict assessment conditions required for these tests could not be fully satisfied under the conditions in which he would be working.

Even so, Dr. Singh felt these tables would be most helpful to him as it would allow comparison of performance of his survey pupils with the national standards which had been established some years ago.

In its reply, the Department of Education said nothing about possible differences in attainment between boys and girls at a given age, nor did the Department explain when or how these tests had been constructed.

The Department of Education also supplied general statistical information on the size of schools, number of pupils attending by age and sex, and so on. Dr. Singh found the following statistical table of particular interest, especially after he had calculated the ratio of girls to boys for each group.

Comment : *(i) How complete is the enumeration ?*

(ii) Nothing is said about the number of children not attending or only attending intermittently (occasionally).

Indication of Problem : *The large difference in the total number of boys and girls attending suggests different attitudes and a different value placed on girls' education in comparison to boys'*

Lack of information

Actively searching for more information

School Attendance : 1980			Calculated girl / boy ratio
Age in years	Boys	Girls	
6 - 7	107,320	97,600	→ 0.91
8 - 9	101,960	88,710	→ 0.87
10 - 11	89,350	70,590	→ 0.79
12 - 13	78,760	57,510	→ 0.73
14 - 15	61,880	41,460	→ 0.67
15+	30,110	8,970	→ 0.30
Total	469,380	354,840	

This table clearly showed that :

(i) the number of pupils declined with age

(ii) relatively few pupils stayed on after age 15

(iii) The declining girl/boy ratio showed that with increasing age the number of girls attending dropped steadily relative to the boys; there is a marked drop after age 15.

The Department of Education expressed great interest in the proposed study of parental influence on children's education but regretted they had no information on this subject. They suggested Dr. Singh get in touch with the State Training College.

This he did and received a kind invitation from the Training College to visit and use their library in which were deposited (kept) the theses and research reports of teachers investigating many aspects of education and children's intellectual development.

Comments :

A non-random sample is usually biased and sometimes very biased indeed. Although the results from a biased sample may be very interesting, they can be most misleading when applied to the whole community. Every community consists of many different social groups, often different economic and religious groups as well. A sample that is biased towards one community group cannot fully reflect (tell us) how the other community groups feel and think and react to problems and events; these different groups often have greatly different needs.

Problem : *Can Dr. Singh assume that education, mode of living and attitude are the same for those that work in the small town compared to those who regularly travel to, and work in, the city? Probably not.*

Comment : *Despite the unreliability and unrepresentativeness of these data, these were the only figures on literacy in small towns and parental involvement with school work that Dr. Singh could find. He was therefore forced to take these into account despite his distrust of their reliability.*

Dr. Singh found several of the theses most interesting. They did not, of course, provide many facts and figures but they were full of ideas on how studies might be done and suggested several important problems requiring further research.

In one of the theses the investigator had interviewed 90 fathers in a small rural town. Unfortunately, the investigator's sample of fathers was definitely not random or representative of parents living in small rural towns.

Firstly, the investigator had chosen his particular town because it was convenient to get to, being only a twenty-minute railway journey from the Teachers Training College at which he was studying. Many of the men in this town travelled each day to work in the city, thereby becoming more familiar with, and more exposed to industrial life and attitudes than would most men living in small semi-rural communities.

Secondly, the investigator had waited at the town railway station to interview men going to, or coming back from, work in the city. Not all the men approached in this way agreed to answer his questions; equally important, he did not meet parents not working in the city. Dr. Singh felt the research worker had been very careless about his research and interviewing methods.

Amongst the 90 men interviewed, 37 (41%) said they could read a newspaper. Of those who were literate, i.e. could read a newspaper, 92% (34 out of 37) said they helped their children with homework. Amongst the illiterate, 36% (19 out of 53) said they gave as much help as they were able. The rest said they did not give much help.

Comments : *This information relates to an industrial city and is very different from the small town environment that concerns Dr. Singh. Nevertheless, the social and attitude differences between 'professional' and 'skilled-worker' families suggests (indicates) a social mechanism affecting parental involvement with school education. The evidence is 'soft' and possibly not completely relevant to Dr. Singh's problem; however, the ideas suggested are of value.*

In another thesis, the investigator had worked in an industrial city and had interviewed 30 fathers in professional jobs, such as lawyers, doctors, dentists and engineers and 30 fathers working as skilled workmen in a nearby steel mill. The selection of fathers was not random.

These two small and selective samples suggested very different attitudes to, and involvement with, the education of their children. Professional parents strongly influenced their children, daughters as well as sons, to stay on at school with the aim of entering one of the professions; university education was highly valued. On the other hand, the skilled workmen placed rather less stress on further education and instead wanted schools to teach more practical subjects. Few actively encouraged their sons, even less their daughters, to aim for a university education. Most wanted their sons to leave school at 14 or even younger and to take up a skilled trade or apprenticeship.

This study clearly indicated that the education, social class and economic status of parents influenced their attitude to their children's education. This thesis also supported the view that sons and daughters did not always receive the same level of support and encouragement.

USING EXISTING INFORMATION SOURCES TO OBTAIN ADDITIONAL DATA

Most large organisations, including the various branches of the health services, routinely collect and record much information relating to their own activities. These organisations can be most helpful in providing information quickly in three ways :

Lack of appropriate and relevant information

(i) they can grant (give permission) access to, and the use of, their existing data;

(ii) they may agree to their own staff extracting and analysing information from their past records for the user;

(iii) they can sometimes be persuaded to assist for a short period in the collection of additional data by their own staff.

Lots of clinical and biological information available but little on environmental, community and social factors

The organisation's management must of course be given good reasons and must be convinced of the benefits to the community and to themselves of providing this information. They must also be convinced that the enquirer will treat the information responsibly and will respect confidentiality.

No precise or quantified information : no hard data

In making such requests to an organisation, it must be remembered that collecting additional information or extracting information in a different way than is usual may disrupt on-going routine information recording activities and will make extra work for the staff. The staff

Use of village health centre records and co-operation with community health workers

Third Speaker . Dr. A. Xuma

Subject : A Survey of Parasitic Disease Amongst Children Attending an Infant Care Clinic

There was a lot of information available on parasitic disease but surprisingly little that related to its prevalence in the community, or its seasonal and geographical location (area) variation in the very young. Even less information was available on any relationship between gut parasites and various social and economic factors such as housing and water supply.

There was a lot of information in the medical journals on diagnosis, the effects of parasites on health and the treatment needed. There was also much information on the life cycle and mode of transmission of the parasites which suggested that seasonal and district variations might be expected. Likewise, hygiene and infected water supply would re-inforce seasonal and geographical variations.

This led Dr. Xuma to suspect that poor housing, overcrowding, poverty, poor education and unhygienic conditions could all be major factors in spreading parasites. Nowhere could he find actual measurements or results showing the relative importance of these different factors.

In his search for information Dr. Xuma asked several health workers from nearby villages whether or not they had any knowledge or records that might help. One of them mentioned that the village health centres kept records of patients and the drugs prescribed for them. They could therefore extract (copy) how many patients had been issued with

normally responsible for collecting and recording information must therefore understand, and be convinced of, the need for changing their routine methods and for collecting more data; management's approval without the staff's willing consent is not enough. Staff collecting information nearly always have many other duties and responsibilities and often have little time for extra 'statistical' or clerical work. They need to become motivated if they are to be of real assistance.

Arrangements are also necessary to train and instruct the staff in any new information collection procedures or in the use of new forms they are to fill in; some

Transcription Sheet : Use of simple totals to demonstrate seasonal effects

Likely Limitations of Data

(i) Are all cases being recorded or have some been forgotten?

(ii) Have some patients reported several times to the clinic and been given similar treatment ? These data refer to patient visits and not to the number of children treated.

(iii) How accurately are the ages of the children known ?

(iv) What is the effect of health worker experience and training on their willingness to issue drugs?

(v) In some months very few anti-parasitic prescriptions were given. Was this due to fewer cases reported or did the drug supplies run out?

Comment : *Was the reason for more prescriptions at some villages due to more parasitic disease or due to more generous drugs dispensing?*

anti-parastic prescriptions and they could do this for each month. One of Dr. Xuma's assistants then visited the 17 villages in his area and extracted this information from the village health centre records over the past twelve months. The results at each village health centre were copied on to a transcription (copy) sheet, an example of which was shown by Dr. Xuma.

Name of Village Health Centre : Lambolan

Anti-parasitic prescriptions to children under 5 years

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
Number of prescriptions	8	3	2	4	3	7	4	3	5	7	10	13	69
Number of children seen	67	79	59	62	64	39	48	53	62	81	89	77	780

A similar seasonal trend was found at fifteen of the village health centres, but at some villages the number of prescriptions was much higher. Two village health centres did not have adequate records; one had incomplete records because the health worker had himself been ill for several months and in the other the health worker had moved away and his successor had not been trained to keep the records.

friendly and tactful supervision is needed. Information is often of much poorer quality than it need be because the staff responsible for its collection and recording are insufficiently trained, insufficiently supervised and insufficiently motivated. It is definitely not enough to issue (give) instructions and then return some weeks or months later hoping to be handed over (given) the data. **The researcher must himself take an active and continuing interest in all stages of the information collecting and recording process.**

An example using simple ratios and averages to demonstrate differences between different sources of water supply

Before using information it is important to check on the quality of the available data. The user of published data must usually rely on the published description of how the data was collected and what steps were taken to ensure it was correct and representative. If the user is in a position to examine (see) the individual records for himself he is in a better position to test and judge how reliable is the information.

Important points to look for are :

1) *How representative of the population or of the disease are the cases on whom information has been recorded ?*

2) *How carefully have the forms and questionnaires been completed; are all the forms there or have some been lost or thrown away ?*

3) *Have the completed forms been checked to see that nothing has been left unanswered, and that information in different parts of the form is consistent, i.e. do not contradict each other ?*

4) *Is there evidence (signs) that the forms are differently or not as well filled in by different recording personnel ?*

For each village health centre Dr. Xuma calculated the ratio of prescriptions to the number of children seen under the age of 5; for Lambolan village this ratio was 69/780 = 0.088. Dr. Xuma also recorded, for each village, whether its main water supply was from wells or from the river; river water was considered to be less polluted. He put his results into the following table :

	Ratio of : Prescriptions / Number of children					average ratio
Water supply mainly from river (5 centres)	0.09	0.07	0.12	0.11	0.09	0.096
Water supply mainly from wells (10 centres)	0.13 0.08	0.17 0.09	0.09 0.13	0.14 0.16	0.15 0.12	0.126

Although these data were 'soft', i.e. not fully reliable, these ratios did suggest considerable variation in the level of parasitic disease between villages and also suggested that polluted well water could be an important source of infection.

This was all very interesting to Dr. Xuma, but it did not answer his main question : 'What was the level of parasitic disease in young children as seen at Dr. Xuma's Health Centre?'. Levels at village health centres are not a reliable guide as to the extent of parasitic disease in patients attending the District Health Centre. Dr. Xuma was also unwilling to put full reliance on the village health centre records because diagnoses of diseases and the frequency with which drugs are issued varied a lot between villages, depending on the experience and training of the village health workers.

5) *What instruction and training did the staff get before collecting and recording information ? Were the terms used in the form carefully explained in the instructions ?*

Despite an active search for information, community and environmental information remains scarce

Data are often called 'soft data' when they are not fully representative or when the terms used are not clearly defined or when the variables and charcteristics in which we are interested cannot be measured precisely or consistently. In contrast, information about which we are sure, and confident that it is of good quality, is called 'hard data'. Soft data can still be useful; often there is no better information available. Great care and precautions must be taken in acting on and using soft data. **Soft data can be misleading** *and should only be used to provide guidelines and indications. They should not form by themselves the basis of important decisions.*

For these reasons Dr. Xuma decided on the survey of parasitic disease of young children attending his clinics.

SIMPLE ARITHMETIC AIDS TO UNDERSTANDING INFORMATION

Published health and demographic data are often presented (given) in the form of frequencies (totals), i.e. as the total number of cases seen or counted, usually divided into several classes or sub-categories. Likewise, much of our information on mortality and morbidity derives (comes) from a count of the total number of cases recorded in a given period, usually one year. More information can be derived (obtained) from such basic totals by simple procedures such as calculating :

(i) averages

(ii) percentages

(iii) ratios

(iv) various mortality and morbidity rates using available demographic data.

Source of information :

Ministry of Health

Accidents :

Definition of 'accident' and classification of accidents needs careful study

Averages

(a) **Averaging over a number of years.** *Averages provide more stable and reliable figures than do the individual yearly totals. Yearly totals may fluctuate quite widely especially if the yearly frequencies (totals) are small; this will be the case for rare diseases or infrequent occurrencies, e.g. sarcoma of the liver or suicides. It is usually not advisable to average over more than a five year period; for longer periods quite substantial trends and other changes may have occurred which the process of averaging will blur (obscure). Small yearly totals may also be found for common diseases and*

Fourth Speaker : Dr. J. Desai

Subject : A Survey of Accidents and Injuries at Three Health Centres.

The main emphasis of the survey was on accidents and injuries, although other health problems were also included.

For each State, figures were available from the Ministry of Health on the number of fatal accidents by age and sex. Accidents and fatal injuries were again categorised (divided) into deaths caused by :

(i) road, rail and air accidents (combined)

(ii) poisoning

(iii) drowning and accidents at sea

(iv) all other causes of fatal injuries

As an example, one small State gave the number of deaths for 1980 from road, rail and air accidents as :

events where these relate to separate communities or small population areas. Averaging over a 3 to 5 year period will be equally helpful in these cases.

(b) **Averaging over a number of administrative units.** *Data from small organisations or administrative units, e.g. individual hospitals, health centres, schools, villages and small administrative areas, may fluctuate widely between the units, i.e. they are statistically highly variable. Often it is best not to work with these individual, possibly unreliable, figures (data) but to work instead with the average over several of these units.*

Calculated ratios as an aid to understanding the data

Percentages

Calculating percentages can also be helpful as it makes much easier the comparison between different areas and different institutions; percentages also simplify comparisons of data collected at different times. This is illustrated by the following data on infant deaths from pneumonia. In the table below, the percentage of pneumonia deaths for each decade (ten years) is easy to understand; these percentages clearly reveal the underlying changes.

Comment :

Evidence of difference between sexes in certain age groups as regards type of fatal accident

Age in years	Road, Rail and Air Deaths		Calculated F/M ratio
	Male	Female	
Under 5	7 (4%)	8 (6%)	1.14
5 - 14	18 (10%)	15 (12%)	0.83
15 - 24	43 (24%)	24 (19%)	0.56
25 - 44	58 (33%)	30 (24%)	0.52
45+	51 (29%)	49 (39%)	0.96
TOTAL	177 (100%)	126 (100%)	0.71

There is some evidence in these figures that female 'road, rail and air deaths' are lower than for males in the age group 15-44, perhaps because of their considerable domestic ties (work at home) at that age. This is clearly shown by the ratio of female to male deaths as calculated from the published data by Dr. Desai.

Deaths in Children during first year of life : Scotland
(excluding the first four weeks)

	1950	1960	1970	1980
Deaths from Pneumonia	418	242	195	19
Total Deaths from all causes	1,438	825	599	296
% Pneumonia Deaths	29.1%	29.3%	32.6%	6.4%

Comment : *This table illustrates how comparison of deaths from a specific cause with deaths from 'all causes' can be very instructive.*

The first two rows of this table show how the number of infant deaths (after age one month) decline over the period 1950 to 1980; this is true of deaths from pneumonia as well as for all deaths (all causes). However the third row shows that the percentage of deaths due to pneumonia between 1950 and 1970 remained steady at about 30% . By 1980, ten years later, pneumonia as a cause of death dropped very markedly to 6.4% , probably due to the introduction of specific respiratory antibiotics and improved intensive care treatment in Scotland.

Percentage should **not** *be calculated for denominators* smaller than 30; some statisticians are more strict and would say the denominator should be greater than 50.*

* In a division, the numerator is the 'top' figure, the denominator the 'bottom' figure, i.e. for the year 1980 in the above table, the fraction of deaths from pneumonia is calculated by dividing the numerator (19) by the denominator (296). The percentage is given by multiplying the result (fraction) by 100.

Figures were also 'available for all reported deaths, i.e. for deaths from all causes, and these showed that female and male deaths were similar in the age group 15-44.

Deaths reported 1980

Age in years	All causes		Calculated F/M ratio
	Males	Females	
Under 5	213	196	0.92
5 - 14	181	192	1.06
15 - 24	417	446	1.07
25 - 44	426	411	0.96
45+	481	413	0.86
TOTAL	1,718	1,658	0.97

For 'all causes' the ratio of female to male deaths is much more stable than in the previous table. The small increase in the ratio in the 5-24 age group may be due to chance; in any case it is a relatively small increase.

Ratios

Calculating appropriate ratios is another helpful way of understanding and using information. A ratio is the quotient (answer) obtained by dividing one number by another. Ratios often reveal, in a very simple way, how two frequencies or two quantities relate to one another; ratios also show at what stage two quantities change relative to each other. For example, the steady upward trend in the number of older people in Scotland is clearly indicated by the following census data and the ratios calculated from them :

Comment :

Even when coming from the same source, some kinds of information are more reliable than others. In this example fatal accident reporting may be more complete and accurate than reporting of 'non-accident' deaths

Example of using 'imperfect' information when it is all that is available. Great caution is needed in interpreting results using inadequate or old data; they can sometimes mislead.

Scottish Census Data*

Population	1931	1951	1961	1971	1981
Aged 65 and over	353,244	506,895	548,908	644,452	710,794
Aged 15 to 64	3,184,702	3,333,419	3,291,338	3,229,709	3,246,592
Ratio of 'over 65' to '15 to 64'	0.11	0.15	0.17	0.20	0.22

* A census was not taken in 1941 because of the war in Europe, 1939 - 45.

Dr. Desai explained that he had rather more confidence in the accuracy of fatal 'accident' deaths than he did in the deaths reported from 'other', i.e. non-accident, causes. In particular he believed that deaths in young infants and in the very old were not always reported; many deaths occurred at home and for the remoter villages it was a loss of one, two or even three days' earnings (wages) for the father or nearest male relative to travel to town to report the death. The situation was different for fatal accidents as these often involved the employer as well as other people such as hospital staff and the police. This involvement of other persons usually resulted in the death being reported.

The number of deaths from 'all causes' was known to fluctuate (change) from year to year; such fluctuations were often caused by communicable (infectious) diseases where an epidemic (outbreak) could quickly increase the number of deaths.

The best source of population figures was the census. This small State, from which the above data were taken, had its last census in 1975 and Dr. Desai used these figures. To obtain an estimate (value) of the death rate for 'road deaths', by age and sex, he averaged the five years figures from 1976 to 1980, e.g. 39/5 = 7.8, the average male deaths per year under age 5. These calculations produced the following figures :

Age in years	Total Road Deaths 1976 - 1980		Calculated Average/year		F/M ratio
	Male	Female	Male	Female	
under 5	39	37	7.8	7.4	0.95
5 - 14	96	89	19.2	17.8	0.93
15 - 24	227	131	45.4	26.2	0.58
25 - 44	316	148	63.2	29.6	0.47
45+	247	231	49.4	46.2	0.94
TOTAL	925	636	185.0	127.2	0.69

The above absolute (actual) totals for 'persons over 65' is a measure of the demand (need) by the elderly for social and health services. Such needs must be met by establishing and maintaining geriatric hospital wards, special housing and so on. This is especially true of the more industrialised countries where unfortunately the family structure, and hence individual family support for the elderly, has weakened.

Totalling and averaging over a number of years (e.g. 5 years) in order to obtain more stable and reliable indices (data).

However, the staff to run and the money to pay for these services for the elderly must come from the active, working population aged 15-64. It is a matter of considerable economic and social importance to measure whether the burden of support for the elderly, which falls largely upon the 15-64 age group, is changing and if so, by how much. One simple measure (index) of this changing burden is to calculate the ratio of 'persons over 65' to 'persons aged 15-64'. As the above table shows, there has been a steady increase in this ratio in Scotland; the ratio has doubled over the period 1931 to 1981.

Checking whether the smaller number of cases seen (deaths in this case) is explained by a smaller population.

As a general rule we can use :

(i) **absolute (actual) totals** *to answer questions related to the demand for services or to questions concerning the supply and availability of resources.*

(ii) **ratios** *to measure (indicate) relative changes in the factors affecting supply and demand.*

These five year totals and the F/M ratio, using the five year totals, show a similar trend to that given by the single year deaths (1980). This confirms that female deaths due to 'road' accidents are relatively fewer in the age group 15-44.

To make sure that the fewer deaths in the age group 15-44 are not just due to a smaller female population, the death rate was calculated for both sexes and for each age group (age and sex specific death rates). The population figures required to do this properly should be the population size at July 1978, the mid-point in time of the period 1976-1980, for which data on 'road deaths' are available. However, only the last census data (1975) were available and Dr. Desai had no option (choice) other than to use these old figures in his calculation of the death rates.

Population Age and Sex Distribution			Average Number Road Deaths 1976 - 1980	
Age in year	Male	Female	Male	Female
under 5	99,424	94,682	7.8	7.4
5 - 14	173,066	158,890	19.2	17.8
15 - 24	240,931	202,155	45.4	26.2
25 - 44	315,278	262,881	63.2	29.6
45+	72,553	103,164	49.4	46.2
TOTAL	901,252	821,772		

Rates

Rates are of great importance in the study of health problems and in health policy making.

> *Confirmation that a drop in female road accidents in age 15-44 is genuine and is not explained by a sex imbalance, i.e. a relatively smaller female population.*

A rate is a special kind of ratio in which the number of cases occurring within a year is divided by the number of persons exposed during that year. For instance, the fertility rate is sometimes defined as the number of live births occurring within a year divided by the number of married women under the age of 45 in that same year.*

The definition of the 'fertility rate' illustrates several difficulties often met when rates are to be calculated. The fertility rate requires the following information :

(i) the number of live births within a fixed period (one year). This information may not be available as it requires a well functioning registration scheme to provide it. There are also clinical difficulties in clearly defining a 'live birth'. Moreover, in some developing countries, babies dying within a few days, or even a few weeks, may be reported as born dead or not reported at all.

* In some definitions of the fertility rate the age is extended to under 50 years, instead of under 45; some countries include illegitimate births in the definition. When comparisons are made between countries, careful note must be taken of such differences in definition.

'Road and Vehicle Accidents'

Age in years	Estimated Deaths per 100,00	
	Male	Female
Under 5	7.8	7.8
5 - 14	11.1	11.2
15 - 24	18.8	13.0
25 - 44	20.0	11.3
45+	68.1	44.8

At this stage Dr. Desai came to realise that the information he was studying was not really answering his questions.

Firstly, the information most readily available related to large administrative and political areas such as the various States of the country. Information on individual Health Centres or smaller communities could not be found.

Secondly, and equally important, the published and available data related almost entirely to deaths. A serious study of accidents and injuries, how these are caused and the manner in which these are treated, must include all serious accidents, not just the fatal accidents. The majority of serious accidents are not fatal; yet these non-fatal accidents may cripple the victim and impoverish his or her family.

Accident reporting is a difficult problem. Fatal and very serious accidents are much more likely to be fully reported. As is well known, under-reporting is a real problem in all health and medical recording.

If a more complete picture of accident morbidity, i.e. of all injuries due to accidents, is to be obtained, then detailed Health Centre and Community based studies must be done. Even these might not give the full picture because fewer people report the less damaging and the less serious accidents.

(ii) the number of married women between 15-45 (or 50) is not always known. This figure also changes slightly during the course of a year due to new marriages and due to deaths. As a compromise, the 'average' number of married women aged 15 to 45 (or 50) at the middle of the year is taken. Because of these difficulties some definitions include illegitimate births and do not distinguish between married and unmarried women.

When the number of cases or the number of persons 'at risk' is not known, only approximate rates can be calculated using data derived from surveys or other sources; usually these cover only a part of the country or region.

Prevalence and Incidence

Rates relating to various diseases or disabilities are further divided into 'prevalence' rates and 'incidence' rates.

(a) **Incidence Rate.** *For an incidence rate we first count all the* **new** *cases of a defined disease or condition seen (or first diagnosed) in a time period, usually taken as 12 months. Cases seen or diagnosed* **before** *the start of the time period, whether cured or not, are excluded. This total of new cases is then divided by the total number of persons exposed to the risk of catching this disease or developing this condition in the same time period. Incidence rates can also be calculated separately for males and females and for specific age groups. These are then known as 'sex and age-specific' incidence rates.*

(b) **Prevalence Rates.** *For a prevalence rate we count all cases of a defined disease or condition seen, diagnosed or treated* **during** *a time period, usually taken as 12 months. Thus prevalence rates also include those cases first seen or diagnosed* **before** *the start of the time pe-*

riod but who still suffer from the ailment within the time period under study. This total number of cases is then divided by the total number of persons exposed to the risk of suffering from this condition in the same time period.

Prevalence rates can also be calculated for sex and age-specific groups.

The above prevalence rate is sometimes referred to as the 'period prevalence rate' because it is measured over a period, usually twelve months. When the period chosen is very short, e.g. all cases found on a particular day, it is then called the 'point prevalence rate'.

SEARCHING FOR THE AVAILABLE INFORMATION

There are no proper rules to help find information, only some very general guidelines.

The searcher for information should ask himself two simple questions :

1. *What information does he need and which of this information is of most importance to him ?*

Information is available on some aspects of the current problems but is not directly usable or relevant.

2. *Who else is likely to be interested in similar information or who is working on problems, administration or planning that requires related information?*

As a specific example, consider the problem of 'housing conditions'.

Information on cities and towns may be available from city or district authorities

If the investigator is interested in general housing conditions then the following are a few specific topics likely to be important to him :

1. *the size of the population and its age structure*
2. *the type and number of houses available*
3. *distance of houses from shops, the city centre, schools and the health centre, etc.*

Useful town planning data collected by District Engineering Departments for their own purpose. Of limited value only to present study of community health and housing needs.

Fifth Speaker : Dr. T. Tamburi

Subject : A Survey of Urban Housing and Living Conditions in relation to Tuberculosis and Eye Infection.

Dr. Tamburi was amazed at the large amount of information collected by the government, city authorities and research teams on housing and living conditions. The real problem was to obtain and then sift through this information. Comparatively little of these data really answered his questions. The reason for this was that every collector of information, whether government or city authorities, required the data for different reasons that suited their own needs. As a result, little of it was of direct relevance to Dr. Tamburi's community interests.

For example, the district engineering department had two years previously made a detailed study of the piped water supply and the sewage disposal system in this town. For each building plot, whether built upon or not, they recorded whether piped water was available on the plot and whether waste water and toilet sewerage pipes had been laid. This was most important information for the district civil enginners who could now, for the first time, plan a systematic and comprehensive water supply and sewage disposal system for the town.

The District Engineering Department willingly allowed Dr. Tamburi to study their maps and all the other information they collected on the city water supply and sewage disposal system.

Dr. Tamburi copied the District Engineer's map which showed in blue where piped water was available and in red where the existing sewerage pipes were. This showed at a glance where the poorest facilities existed and where one would also expect the poorest section of the community to live. Dr. Tamburi was surprised to find that the map

4. *water supply*

5. *sanitation : sewage as well as refuse (garbage) disposal*

6. *transport facilities : condition of roads, availability of railway, etc.*

A list of information needs such as this immediately suggests those authorities who also need and work with information of this kind. For example, for the above topics the following are likely sources of information :

1. **Size of population and its age structure**

Use of available information for sampling.

(a) The census reports and the government (or regional) departments responsible for collecting and organising census information.

(b) Civil registration office for information on births, deaths, possibly also marriages and migration.

(c) School and education authorities if information is needed on young people.

2. **Type and number of houses available**

Local city, town or district authorities. The larger cities usually have planning officers who collect and file information on housing and housing conditions. Even smaller local authorities may have an office where some housing information is collected. In some countries the allocation of houses and flats is the responsibility of a city or government department. In some countries large industrial and commercial firms supply most of their workforce with houses. To operate a 'house allocation' policy requires a lot of information which will be of interest to the research worker.

Use of available information for health.

showed how long narrow sections of deprived communities penetrated like fingers into well supplied and more opulent (rich) parts of the town. This useful information helped Dr. Tamburi to draw up boundaries for his survey clusters. He reminded us that cluster sampling was more efficient if each of the clusters contained dissimilar (different) sections of the community.

By counting plots on the map, Dr. Tamburi found that 53% had sewerage pipes either on the plot or laid on up to the plot boundary. Of course the percentage of people enjoying a piped water supply and sewage disposal might be very different as the most densely populated and poorest areas had fewer water and sewerage disposal pipes; no information was available as to what this percentage might be.

Information on tuberculosis was also not difficult to get, but it did not relate to tuberculosis as a social problem in the community. A year or so earlier an anti-tuberculosis campaign had been conducted (carried out) by the town's health centre. The District Medical Officer had very carefully collected together the records of patients seen and tested for tuberculosis at the town's health centre. This showed that over the six months of the tuberculosis campaign some 7,806 adults had been X-rayed by a mobile X-ray unit. Of these, 478 had signs suspicious of tuberculosis.

3. **Distance from shops, schools and so on**

Local and town authorities are most likely to have some information on this; it will usually be in the form of maps and city sketches. The local authorities and district planning and engineering department can often supply additional information which the investigator can insert (mark) on a standard map. It is often very revealing to compare the map, and such additional information as supplied by the various authorities, with what the research worker finds when he visits and inspects the area and sees what is actually present 'on the ground'. Where social and environmental conditions change rapidly, health and community conditions can sometimes be chaotic; this will not always be reflected in the information available from official sources.

Limitations of the data

(i) Incomplete response. Only about one quarter of the adult population came for the T.B. examination.

(ii) The health of volunteers (those who came for examination) may be different from those who did not.

(iii) Information is not related to social and other factors.

Most showed old and non-infective scarring but one in four was still infective on the sputum test. These figures clearly showed that tuberculosis was a serious health hazard in the town. However, these figures were based on people volunteering for examination during the campaign, and the health of those who did not come for examination was unknown. The number who did not come was large as the town's adult population, according to the last census, was almost 26,000.

In his search for information Dr. Tamburi next consulted (read) some of the theses and research reports done by senior students in the University Social Science Department. Several of these were interesting and helpful. One student had befriended beggars, cripples and old men sleeping at night in doorways and other sheltered places. He found 16 such persons in the town. The thesis described how these people lived and how they obtained money and food. The student also obtained short life histories and so was able to describe how and why these disabled persons were without work or family support.

4. **Water supply and sanitation**

Several authorities are concerned with the community water supply and sanitation. Each of these will have some relevant information. In many countries the most important are :

(a) City and District Engineering Departments

(b) City and District Health Officers

Sometimes commercial contractors and firms are responsible for laying water pipes, providing water supplies and for the removal of refuse. These firms are sometimes willing to help although most will withhold (keep back) information they feel may harm their business interests. Many governments have departments whose responsibilities include irrigation, dams, reservoirs and water resources. Such departments may have useful information on the water supply, its

Use of sociological information obtained on a small sample of individuals. Limitations are :

(i) data collected for reasons different from present problems

(ii) data does not make clear the relationship between these individuals, their families and the community

Problems arise when using information collected for a different purpose.

Using census data to obtain preliminary estimates of the number of disabled persons in the town.

Comment :

These are only approximate values. For example, the census figure of 6% is an average or typical value for the whole country. The conditions in any particular town or locality may be very different.

Although this provided excellent background reading, the information was not of much direct use to Dr. Tamburi who needed information that could be used to plan, organise and initiate medical and community action in support of the disabled. Support might also be needed for families struggling to keep and feed their elderly and infirm relatives. The student, on the other hand, had been interested in much more limited objectives. The student needed to write a thesis for his university degree (examination), and he could only study a small number of disabled persons in the available time, especially as he was working on his own. The student was not interested, nor qualified, to investigate medical histories and medical needs. As a sociologist the student's interest was in minority groups with particularly acute problems; measuring general community conditions and relationship was not his objective.

Finally, Dr. Tamburi wanted to have some idea of the number of severely disabled and incapacitated people living in his town; for this town the last census reported a population of 40,963 persons. One of the questions asked in that census was whether there was anyone living in the household who was sufficiently disabled or incapacitated to be unable to leave the home without someone helping or going with them. Six percent of households reported such severely disabled persons.

Elsewhere in the census report, it was stated that, for the country as a whole, the 'typical' or 'average' household consisted of 6.3 persons. This is a statistical way of saying that for every one hundred households we can expect to find approximately 630 persons. This of course meant that as a first estimate (informed guess), Dr. Tamburi's town would have about 40,963/6.3 = 6,502 households.

If 6% of households had a severely disabled member, as reported by the census, then Dr. Tamburi could also expect

fluctuation at different times of the year and fluctuation in the domestic and industrial demand. This information usually relates to large areas and districts and may not be suitable for detailed studies of local community conditions.

5. **Roads and Transport**

Roads and transport, schools and shops do not strictly fall within a study of 'housing conditions'. Nevertheless, conditions under which people live and work are considerably worse where roads, transport, schools, shops, health centre, and so on are inadequate or difficult to reach. Roads and transport greatly affect the opportunities available for improving community welfare. Information on roads and transport is usually available from only three sources :

(a) **City or District Authorities**

The engineering department can usually provide information on the conditions of the roads, plans for new roads and traffic congestion within their area. Information on the local bus and transport services will also be available from the responsible city or district authorities. Information on running times, the number of buses available, the number of drivers employed and the number of people using the service (or at least the number of fares collected !) is known to them. If approached in a tactful way they may release this information to a research team.

(b) **Regional or Government Departments**

Most governments prepare national reports on road, railway and river traffic and general transport facilities. Some of this information may appear in official reports; some additional information may be released on enquiry from the research director. This provides useful background information against which the local road and transport situation can be compared.

about 6% of his households to be looking after a severely disabled person. This he calculated to be 0.06 x 6,502 = 390 severely disabled persons.

This figure was a useful approximate indicator of the number of severely disabled persons living in the town. However these basic census facts gave no information on important questions such as how these families were managing and whether these disabled persons were adequately (properly) looked after.

Dr. Tamburi found that the available information was often important and relevant, but it did not replace the need for a survey into the specific problems of interest to the Science Department and to the general practitioners.

(c) **Business firms and enterprises operating transport service**

In many countries, transport by lorries, heavy vehicles and buses is organised on a company business basis to which the State may sometimes pay a supporting subsidy. Such firms, if they are to operate effectively, must be in possession of a great deal of information, some of which they may be willing to give to the research investigator.

USING THE INFORMATION WE ALREADY HAVE

Collecting information is costly even if it is the government or some other authority that collects it. Making good use of information is therefore important. Everyone agrees that making plans and decisions without good information is very risky and leads to unworkable plans and incorrect decisions.

How easy is it to use information ? Sometimes it is extremely simple and sometimes it is impossible to make use of it. Effective use of information requires that we can :

(i) influence the health condition or affect the social and environmental conditions;

(ii) make acceptable the changes and modifications proposed to those most concerned, whether they are administrators and planners, or the community as a whole or individual persons;

(iii) obtain the resources needed to change and improve conditions.

A few practical examples will illustrate these points. There is ample information that high blood pressure increases the patient's risk of having a stroke or developing coronary problems. With modern drugs, high blood pressure can often be lowered and kept stable. This is a case where knowledge of the effect of selected drugs on blood pressure can be put to good use. However, discovering all or even most cases of early high blood pressure is difficult. Some authorities have suggested screening for blood pressure but this

Common faults :

(i) failing to recognise a problem

(ii) having relevant information but not acting on it

(iii) failing to act as quickly and as effectively as possible

Sixth Speaker : Dr. Chan Yip

Subject : Use What You Know !

Dr. Chan Yip explained that when Dr. Ashma had invited him to the Survey Workshop he had asked about the topics (subjects) of the other speakers. He realised then that they were all talking about the information they required to do their own surveys, the extent to which they were successful in finding it and the methods they had used in getting the information. Dr. Chan Yip felt that as all these speakers were concentrating on (emphasising) this aspect, he would like to talk about using such information as we already have and for which we do not need to search.

Often, Dr. Chan Yip felt, we fail to make use of valuable information already in our possession. He himself had been to blame for not helping a community sooner just because he had not thought enough about the information he already had. This concerned a remote villge in which he had just then established a very small Treatment Centre with a community health worker whom he was training and supervising. He had noticed the children seemed rather small and were somewhat uncomfortable looking; they seemed to scratch a lot but otherwise there seemed to be nothing seriously wrong with them. The community health worker also remarked during some of Dr. Chan Yip's monthly visits that the children scratched a lot. For reasons he could not explain he did not take any steps to look into this problem which he suspected at the time was widespread scabies (a highly infectious skin disease).

The following month he took a medical colleague along and within half an hour his friend said : 'Why does the village have so much scabies?' Dr. Chan Yip felt very guilty because with that single remark it was suddenly clear to him that he had known; the information had been with him for several months, but he had not put it to good use.

brings other problems such as the high cost of screening programs, shortage of trained personnel and reluctance of some patients to make use of a screening service.

It can be difficult to apply such knowledge. For example, the risk for many cancers increases with age. However, age is not a treatable condition; it is not something anyone can control. Hence, only indirect use can be made of knowledge that age is associated with most cancer risks. For example, certain age groups can be examined more regularly and more carefully for early signs of malignancy.

Action in the form of :

(i) arranging treatment

(ii) organising prevention

(iii) starting a health education program

As a further illustration, much information is available about the deleterious (bad) effects of smoking. Foremost amongst the ill-effects are greatly increased risks of developing lung cancer and bronchial problems, but there are many other effects beside these. This is all well known. Why then is this information not applied (made use of) and smoking prevented by banning tocacco cultivation or imposing other legal restriction ? There are many reasons for this. At the individual smoker's level, he may not be willing to give up smoking. At the community level, there may also be opposition, possibly from shopkeepers fearing some loss of trade and from tobacco industry workers whose jobs might disappear. There may even be fiscal (tax) objections to a complete ban on smoking in situations where the tax on tobacco contributes a significant fraction to the government's budget (income).

Example of incomplete utilisation (use) of information:

used to plan a survey and to design survey question

but not

used for immediate community action

That same week he arranged for supplies of ointment to be sent. He himself conducted a 'skin clinic' for a few days in the village and instructed the community health worker what to look for and how to treat it. A more persistent (long lasting) problem was how to control reinfection. This was being tackled by talks to the mothers on hygiene and other measures they could carry out in the home. The village's 'health education' program was reducing the number of cases of scabies and this had resulted in the Treatment Centre becoming more popular and being used more widely. It was a good example of a little information, properly applied, bringing large benefits to a community.

With a very gentle and kindly smile Dr. Chan Yip asked Dr. Ashma whether, having admitted to being at fault himself in not using information properly, he would now be permitted to ask some of the other speakers if they too might sometimes make similar mistakes.

Dr. Chan Yip reminded Dr. Ashma that he had very early in his investigation become aware that poor roads and poor transport were delaying patients coming to his Health Centre. Dr. Chan Yip appreciated that Dr. Ashma had to produce reliable data and proper evidence and also had to measure the extent of the problem before he could hope to influence the District and Provincial Authorities to act. Nevertheless, even without full information, once he realised roads and transport were such a serious problem, could Dr. Ashma not have persuaded the village elders to act more quickly on their own stretch of road? Dr. Ashma smiled in reply and nodded his head in agreement, saying that he could have done more on the incomplete, but reliable, information his patients had already given him.

The answer to such problems is even more information, effectively used and applied. As an example, if smokers are reluctant to give up smoking, we need to know more about the effectiveness of anti-smoking health education programmes. We need to know more about whether an increase in the price of cigarettes will result in a worth-while reduction of smoking, and we need to know the effect on jobs and tax returns if smoking were prohibited. Even prohibition is not always effective as it may encourage smuggling or other methods of meeting the craving (strong desire) of smokers. Information from other countries can often provide worth-while guidelines.

Example of :

(i) a simple indicator highlighting (making clear) a problem

(ii) failure to act quickly on the problem revealed (shown) by the indicator

Typical Problem :

Should limited action be taken on available information

OR

should action be delayed until sufficient information is collected to plan comprehensive action ?

Dr. Chan Yip then took up the question of Dr. Singh's school performance survey in which he was very interested because in his country similar problems existed. The literate population could and did help their children and by contrast children of illiterate parents were at a disadvantage. In his country too, many parents thought the education of girls was of lesser importance. This was shown early in Dr. Singh's survey when his study of school registers showed that only half the number of girls attended compared with boys. Could there be a better and simpler indicator than that? Had Dr. Singh started any education classes for illiterate parents or given his support for others to do so? Had anyone visited the town or arranged for discussions on the importance of education for girls? These were actions that could be taken even without full information; the little information already known was sufficient to make these decisions and to take some action.

As a final example, Dr. Chan Yip wondered whether Dr. Tamburi was right in not initiating (starting) some action after reading the student thesis about 16 beggars, cripples and old men who were without a home. Dr. Tamburi was quite right in thinking this was only the extreme tip (end) of a larger problem of support for the needy about which Dr. Tamburi's survey would collect more information. Even on the present information a start could have been made to organise some support, work or shelter for these 16 extreme cases.

At this Dr. Tamburi got up and disagreed with Dr. Chan Yip. Dr. Tamburi felt it could sometimes lead to expensive and ineffective (wasteful) action to proceed on incomplete information. He accepted Dr. Chan Yip's general idea that we could sometimes act sooner on information. However, this was an instance (example) where he felt it might be wasteful and harmful to do so. Some beggars, old men and cripples might welcome and respond to support from the community but others would not. If the community spent its money unwisely on one or two projects, it would have less resources to

Example of successful procedures being applied to new situations without regard to changed local conditions which require the procedures to be modified (altered).

An example of how health, disease and social problems can differ greatly between countries.

spend on other important health, social and community problems. He felt it better not to recommend any action until more was known about the problems of the elderly and infirm in this town. The survey would be complete in a few months and Dr. Tamburi would then have better information on which to plan support for the severely incapacitated. It was clear that Dr. Tamburi and Dr. Chan Yip disagreed.

A member of the audience asked to speak. He had an example where it was lack of thought rather than lack of information that caused the damage. He came from a temperate country and nearly all its people lived at heights of 3,000 metres or above. They had only recently introduced primary health care clinics in some parts of his country and only recently brought into use a translated copy of the medical history form used in the low lying part of his country, which was several hundred miles to the south where the climate was mostly hot and humid. Naturally, these forms asked questions and left space for entering information on leprosy and malaria. There was also a section on family planning. All these items had been left in the forms for use in his part of the country. To make matters worse, there was no space on the form for entering information on diseases or conditions not often found in the low lying south.

Now everyone knew health conditions, especially infectious diseases, were different in some respects between these two regions of his country. Yet no one had thought of changing and modifying the form for use in the temperate high lands. Leprosy was practically unknown in the mountains where it was also too cold and too high for the malaria mosquito to breed. Culturally and traditionally his part of the country had small families, usually two or three for a married couple. Therefore family planning was not an important problem for the highland people. This was a clear example of lack of thought; the available knowledge and information about changed conditions and different environments (surroundings) had not been used.

USING INFORMATION :

Some Basic Questions

1) *What do I know about the health problem to be solved ?*

2) *How best can I apply this information ?*

3) *What additional information is needed to solve this health problem ?*

4) *Is this additional information available somewhere ?*

   (a) *If* **yes**, *how can I get this information ?*

   (b) *If* **no**, *can a survey or special study collect this information in a reasonable time and at a reasonable cost ?*

Seventh Speaker : Dr. Retlaw

Subject : Summing up

This had been a very good session during which the importance of finding and using information had been explored (examined). Both aspects of the problem had been discussed. Firstly, the session had exposed the frequent lack of specific information to plan studies and policies, and secondly, had illustrated that a lot could be done without full information.

Health workers at all levels had to ask themselves : "what do I know already and how can I use it? Am I using my present knowledge fully and properly?" Other questions they should ask themselves are: "what other information do I need and is some of this available somewhere even if it is not known to me ? How can I find it ?' Finally, health workers needed to ask themselves that if they are unable to find essential information, how could they set about (arrange) collecting, measuring and observing, i.e. starting studies and surveys, to obtain this information.

Dr. Retlaw ended by thanking the speakers and said he looked forward to the next session on 'Questionnaire Design'.

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